

Standardization of multiple drugs using thin layer chromatography

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Thin layer chromatography (TLC) is a chromatography technique used to separate mixtures. Thin layer chromatography is performed on a sheet of glass, plastic, or aluminium foil, which is coated with a thin layer of adsorbent material, usually silica gel, aluminium oxide, or cellulose (blotter paper). This layer of adsorbent is known as the stationary phase.

After the sample has been applied on the plate, a solvent or solvent mixture (known as the mobile phase) is drawn up the plate via capillary action. Because different analytes ascend the TLC plate at different rates, separation is achieved.

Thin layer chromatography can be used to monitor the progress of a reaction, identify compounds present in a given mixture, and determine the purity of a substance. Specific examples of these applications include: analyzing ceramides and fatty acids, detection of pesticides or insecticides in food and water, analyzing the dye composition of fibers in forensics, assaying the radiochemical purity of radiopharmaceuticals, or identification of medicinal plants and their constituents. As each active chemical constituent has their own rate of travelling on the TLC hence we can identify them by taking standard rate of travelling and use to separate the mixtures. After separation of mixtures, we are going to find out the absorbance, wavelength of the color by colorimetry and find out the purity, for example, Chawanprash.

Various Indian holy books like Mahabharat, Puranas, etc., tell us that this formulation was first prepared by the 'Royal Vaids', named 'Ashwini Kumar brothers', the twins, who were medical advisers to Devas, during Vedic times, 10,000 years ago, for Chyawan Rishi at his Ashram on Dhosi Hill near Narnaul, Haryana, India), hence the name Chyawanprash. The first historically documented formula for chywanprash is found in Charaka Samhita, the ancient ayurvedic book.

The real recipe of chyavanprash is given in ayurvedic texts like Ashtangahridayam, Carakasamhita, Sangandharasamhita, etc. Nowadays different companies are making chyavanprash in their own ways by removing some ingredients and adding their own. The number of herbs used in preparation of the paste varies from 25 to 80, but the main ingredient of all Chyawanprash is amla. Other chief ingredients are: Ashwagandha, asparagus, bamboo manna, blue Egyptian water lily, cardamom, chebulic myrobalan, Chinese cinnamon, cinnamon bark, clove, Indian rose chestnut, country mallow, feather foil plant (*Phyllanthus niruri* or Bhumiamalaki), galls, ghee, giant potato (*Ipomoea mauritiana* or *Kiribadu Ala*), honey, Indian kudzu, Irish root, liquorice, long pepper (*Piper longum*), Malabar nut (Seed of *Adhatoda vasica*), nut grass, potassium, sorbate, raisins, round zedoary, sandalwood, sesame oil, spreading hogweed (*Boerhavia diffusa*), sugar, Tiger's claw or ice plant, wild black gram, and wild green gram.

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